

The Genus *Neocoelidia* in the United States (Homoptera: Cicadellidae)

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The genus *Neocoelidia* was described by Gillette and Baker in 1895 (Hem. Colo., Agr. Exp. Sta., p. 103) with *N. tumidifrons* designated as the genotype. Up to the present time nineteen species and one variety have been recognized.

This paper is a result of a study of the Collection of The Ohio State University, which includes specimens from Herbert Osborn Collection and those collected by D. J. and J. N. Knull; the Entomological Collection of The University of Kansas, including some paratypes, loaned by Dr. R. H. Beamer; Collections from the U. S. National Museum, including the E. D. Ball Collection, and specimens compared with the types by Dr. P. W. Oman, loaned by Dr. Oman; and specimens from the Collection of Prof. Dwight M. DeLong. In addition, collections in the care of Dr. Nathan Banks, Harvard University; Dr. E. S. Ross, California Academy of Sciences; Mr. E. T. Cresson, Jr., and Mr. J. A. G. Rehn, Philadelphia Academy of Natural Sciences; and Department of Entomology, Agricultural College, Fort Collins, Colo., were made accessible.

After a study of all this material seventeen species and one variety are considered as valid, one species is placed in synonymy, and one is reduced to varietal status. Four species and two subspecies are described as new.

Ordinarily in recent years there has been a tendency to base identification of leafhoppers to a considerable extent upon characters of the inner male genitalia. However, in this genus, the species are readily separable on the basis of external characters. The inner male genitalia were studied, and although possessing distinctive characters, were found to be unreliable criteria for separation of several of the closely related species. Their general structure has been discussed by P. W. Oman (Jour. Kans. Ent. Soc. 4:62-28, 1931), and has not been further described here, except incidentally in connection with specific descriptions.

The original description of the genus based upon the robust short *N. tumidifrons*, was amended by Baker (Can. Ent. 30:289, 1898) to include the longer, more narrow form "resembling *Thamnotettix*" common in the southwest. In addition, there is a very characteristic round black spot on apex of head in all but two species, and all but three have a black spot in either scutellar angle, at least in the male.

KEY TO SPECIES OF NEOCOELIDIA

1. Head lacking apical black spot	2
With black spot	5

2. Robust; usually black spots in basal scutellar angles, at least in male	<i>tumidifrons</i> and var. <i>vittapennis</i>	3
Slender, unicolorous		4
3. Elytra yellowish, semihyaline		4
Elytra white, subopaque	<i>pallida blanda</i> n. subsp.	
4. Head sub-conical at apex	<i>pallida</i>	
Head angulate	<i>pallida acuta</i> n. subsp.	
5. Lacking median dorsal dark stripe		6
With stripe		15
6. Some elytral reticulation		7
No reticulation		9
7. Reticulation profuse; small	<i>reticulata</i>	8
Reticulation sparse		8
8. Anterior two-thirds of clavus reticulate	<i>diabola</i> n. sp.	
Slight reticulation on corium	<i>romantica</i> n. sp.	
9. Less than 5 mm. long		10
Over 5.25 mm. long		14
10. Vertex with distinct pattern		11
Vertex lacking pattern; 3-3.5 mm. long	<i>lactipennis</i>	
11. Milky to dirty white in color		12
Yellowish to tawny		13
12. Head subconical	<i>ramona</i>	
Head broadly, bluntly rounded	<i>candida</i>	
13. Robust; from Arizona and Utah	<i>balli</i> n. sp.	
Slender; from California	<i>aroviola</i>	
14. Slender	<i>obscura</i>	
Robust; elytral veins brown	<i>distincta</i>	
15. Stripe continuous from vertex to apex of clavus		16
Stripe not continuous		21
16. Stripe on vertex laterally lobed		17
Stripe laterally sinuate or straight		18
17. Lobes about equal in size	<i>barretti</i>	
Basal lobes extending dorso-cephalad	<i>beameri</i>	
18. Stripe broad		19
Stripe narrow		20
19. Head greatly produced; stripe sinuately edged	<i>pulchella</i>	
Head blunt; stripe straight-sided	<i>fuscovittata</i>	
20. Small; stripe laterally sinuate	<i>lexana</i>	
Large; stripe straight-edged	<i>grandiosa</i> n. sp.	
21. Stripe distinctly margined on elytra		22
Stripe indistinctly margined		23
22. Stripe divided anteriorly by median pale area	<i>tripunctata</i>	
Stripe evident on elytra only, where it is twice angulately broadened	<i>compta</i>	
23. Radial veins of wings showing through elytra; yellowish to orange	<i>lineata</i>	
Paler, greenish; wing veins not distinctly seen through elytra	<i>lineata</i> var. <i>penelineata</i>	

NEOCOELIDIA TUMDIFRONS G. & B.

Neocoelidia tumidifrons, Gillette & Baker, Hemiptera Colorado, Agr. Exp. Sta., p. 104, 1895.

Distinguished readily by its robust form, and the absence of a black apical spot on head.

Common east of the Rocky Mts., occurring as far north as Manitoba and south through Florida; west into the Dakotas, Colorado, New Mexico and Texas. Records show that it is taken more commonly in July and August,

although the southern records indicate it occurs throughout the year. In Gillespie Co., Texas, late in June, it was swept in all stages of development from a low, bushy composite, *Heterotheca* Cass.

Neocoelidia tumidifrons var. *vittapennis*, DeLong, D.M., Jour. N. Y. Ent. Soc. 32:66-7, 1924.

"Elytra marked with brown vittae which follow for the most part the wing venation. A stripe just inside the costal margin, a rather broad stripe along the commissural line and the veins of the wings brown, often margined with brown. Sometimes the tips of the elytra are dark brown, smoky." (DeLong)

The variety was described from Florida specimens. Darker coloring seems to be more prevalent in southern specimens.

NEOCOELIDIA PALLIDA Bak.

Neocoelidia pallida, Baker, C. F., Can. Ent. 30:290, 1898.

As Baker mentioned Tucson, Arizona first the pale yellowish unicolorous form with its strongly produced head, found almost exclusively in Arizona and Mexico, is regarded as the species. In some males the apical cells of the elytra become hyaline, and occasionally traces of a pair of obscure parallel longitudinal vittae are found on the vertex.

Collection dates range from February to October and the species seems to be well distributed in the southern mountainous region of Arizona.

That several forms have for some time been included with *pallida* has long been recognized by various authors. As examination of inner male genitalia does not give a distinct basis for separation of these other forms, two are described here as subspecies.

Neocoelidia pallida blanda n. subsp.

Opaque chalky white, structurally resembling the species, but without hyaline apical cells. A Texas form taken from purple sage.

Length: male, 4.25 mm.; female, 5 mm.

In The Ohio State University Collection:—holotype male, Val Verde Co., Texas, May 6, 1941; allotype and paratype, Kinney Co., Texas, May 5, 1941; and paratypes, Uvalde Co., Texas, May 3, 1941, all collected by D. J. and J. N. Knull. In the University of Kansas Collection, paratypes, collected by R. H. Beamer, in Texas:—Concan, July 6, 1936, Big sage; 65 mi. so. Marathon, July 10, 1938; Corrizo Sprgs., July 23, 1928; San Ygnacio, July 23, 1938. In the U. S. National Museum Collection:—paratypes, Laredo, Texas, June 3, 1933, P. W. Oman; Alpine, Texas, August 8, 1936, E. D. Ball; Brownsville, Texas, Jan. 3, 1932, E. D. Ball; Comstock, Texas, August 9 and Sept. 1, 1936, E. D. Ball; George West, Texas, July 4, 1936, R. H. Beamer; Marathon, Texas, August 8, 1936, E. D. Ball; and N. Laredo, Mexico, August 31, 1936, E. D. Ball.

Neocoelidia pallida acuta n. subsp.

Distinguished from the species by its acutely angulate produced head which is almost twice as long at middle as is pronotum, and narrow. The female is greenish white, male with more of a yellowish tinge.

Length: male, 4.5 mm.; female, 5 mm.

This was probably included in Baker's description as those taken from Palm Springs, Calif., on July 12th by Prof. Morse.

In The Ohio State University Collection:—Male holotype, allotype and paratype, Palm Springs, Calif., May 19, 1941, D. J. & J. N. Knull; paratypes, Palm Springs, Calif., Feb. 8 and Palm Canyon, March 3, H. Osborn. University of Kansas Collection:—paratypes, by R. H. Beamer, El Centro, Calif., July 24, 1938; Indio, Calif., June 29, 1933; Palm City, Calif., July 27, 1938; Bunkerville, Nev., Aug. 8, 1936; and four specimens placed tentatively in this subspecies from Zion N.P., Utah, August 13, 1929, by R. H. Beamer and P. W. Oman. The U.S. National Museum:—paratypes, Ft. Yuma, Ariz., No. 201, Hubbard; Yuma, Ariz., from March 29 to Nov. 2, E. D. Ball; Calexico, Calif., June 18, 1909, E. D. Ball; Caliente, Calif., July 12, 1929, E. D. Ball; Imperial, Calif., June 18, 1909, E. D. Ball; Indio, Calif., June 19, 1909, E. D. Ball; Littlefield, Ariz., on *Pluchea sericea* (Nutt.) Cov., E. W. Davis; Overton, Nev., E. W. Davis; Palm Canyon, Calif., June 4, 1935, P. W. Oman; and "Cala. 2313," C. F. Baker Coll.

NEOCOELIDIA RETICULATA Ball

Neocoelidia reticulata, Ball, E. D., Ent. News 20:167, 1909.

Unique for its dense elytral reticulation, and its small size. Length: male, 3.7 mm.; female, 4.3 mm.

Rare. In the University of Kansas Collection, collected in California by R. H. Beamer:—Carlsbad, August 6, 1935; Palm City, August 7, 1935; and San Diego, August 7, 1935; and in the U.S. National Museum a small series collected by E. D. Ball at Tia Juana, Mexico, August 3, 1912. Tia Juana, California, is mentioned in Ball's description as the type locality.

Neocoelidia diabola n. sp.

Creamy white with coarse, light brown, elytral reticulation.

Female. Head bluntly conical, vertex broad, as long as wide, disc flat, faint carina separating it from front, front tumid; pronotum two-thirds as long at middle as vertex, anterior margin rounded, broadly, angulately excavated behind, finely granulose, lateral margins broadly rounding; scutellum as long as vertex. Elytra broad, compressed at apex, venation distinct, coarsely reticulate except in apical third of clavus and in apical cells. Last ventral segment four times as long as preceding, almost truncate on posterior margin with small, sharp, median indentation.

Male. Pronotum a little longer in proportion to vertex than in female.

Plates joined three-fifths longer than basal width, triangular, exceeded a little by pygofer apex, only slightly compressed on apical third, apices rounded.

Color. Creamy white, head with small round black spot at apex, vertex yellowish with a brown discal design consisting of a pair of narrow median lines starting even with ocelli and extending almost to posterior margin. These lines have short lateral projections at either end and just below middle at right angles to them. In some specimens this pattern is broken. Two broad light brown stripes continue across pronotum and into basal angles of scutellum, area beneath eyes slightly darkened. Two shining black minute ovals, one in each basal angle of scutellum in mid-outer lateral margin. Elytra creamy subhyaline with light brown veins and reticulations, apical and marginal veins pale; eyes brown; below pale. Face with pale median scribe flanked by light brown sides. Tip of beak, tarsal claws and in male, portion of pygofer showing below plates, dark.

Length: female, 5 mm.; male, 4.75 mm.

The Ohio State University Collection: Holotype, female, Devil's Canyon, Arizona, August 25, 1938, from oak, by D. J. and J. N. Knull; and the United States National Museum:—allotype, Glenn Oaks, Ariz., October 7, 1929, E. D. Ball; paratypes, Mt. Graham, Ariz., August 27, 1937, E. D. Ball; Yarnell Hts., July 21, 1929, and October 8, 1929, E. D. Ball; and Wilboit, Ariz., Dec. 15, 1939, Christenson.

Neocoelidia romantica n. sp.

Resembling *N. diabola* n. sp., but smaller, darker, and with sparse reticulation confined to corium.

Male. Head bluntly conical, vertex as broad between eyes as median length, indistinct traces of marginal carina; pronotum slightly more than a third shorter than median length of vertex, evenly rounded in front, broadly, angularly excavated behind. Elytra broad, reaching beyond apex of abdomen, appressed apically, venation distinct, sparse reticulation confined to corium.

Cream colored washed with orange on vertex and scutellum; head with black apical spot, vertex with white narrow median line from apex to base, on either side a broader brown band with lateral projections, anterior extending obliquely to margin, middle parallel to fore, reaching margin above eyes, and basal short, knob-like, darker brown at outer extremity. Eyes brown, ocelli nearer to eyes than to apex; pronotum with pair of diverging median stripes bordered outside by pale, and beneath eyes embrowned; scutellum with apex, portion between basal angles and outer margin of basal angles, including minute round black spot, dirty white; basal angles creamy orange. Elytra creamy semi-hyaline, nervures and reticulations dark brown, except apically, where they are pale. Below cream to light brown with lateral margins of front marked by numerous confluent brown arcs; thorax beneath beak, and venter of abdominal segments dark brown, genital area pale.

Female. Coloring much lighter than in male, and veins less distinctly

embrowned. Last ventral segment $3/5$ as long as broad, truncate posteriorly with faintly sinuate margin and small, sharp median notch; shorter at middle than at sides.

Male plates together longer than combined basal width, triangularly produced, narrowed on apical third, with apices truncate, not quite covering dark brown pygofer apex.

Length: male, 3 mm.; female, 4.3 mm.

Holotype, male, San Diego, Calif., August 7, 1935, R. H. Beamer, allotype and one male paratype, same date, all in the University of Kansas Collection.

Neocoelidia lactipennis (Van D.)

Jassus lactipennis, Van Duzee, E. P., Ent. Am. 6:49-51. 1890.

The smallest known United States *Neocoelidia*, oval, short, thick and milky white with brown elytral nervures, paler at apex; vertex about twice as long as pronotum at middle. It is apparently quite uncommon.

In the University of Kansas Collection:—a large series, Yucca Grove (17 mi. east of Baker), Calif., August 7, 1936, R. H. Beamer. The U. S. National Museum:—two females, Los Angeles Co., Calif., Coquillett (date corresponding to that of type specimens; labeled *lactipennis* by Van Duzee and labels folded on pin); Las Vegas, Nev., October 18, 1927, David E. Fox and "Ut.-Nev., August 30, 1930" in the Ball Collection.

NEOCOELIDIA RAMONA Ball

Neocoelidia ramona, Ball, E. D., Ent. News 27:206. 1916.

Smaller, more robust, and darker than *orovila*. The dark dorsum showing through the milky subhyaline elytra, especially in the males, gives a dark cast to the insect which is peculiar to this species.

Length: male, 3.75 mm.; female, 4.5 mm.

Less common than *orovila* and confined to California with a wide distribution in that State.

NEOCOELIDIA CANDIDA Ball

Neocoelidia candida, Ball, E. D., Ent. News 20:166-7. 1909.

The common, white, broad-headed, sage species found in western Texas, Colorado, New Mexico, Utah, Arizona, Nevada and California.

Neocoelidia balli n. sp.

Similar in coloring and general appearance to *N. romantica* n. sp., but more robust, and lacking reticulation. Recognized as undescribed by E. D. Ball and P. W. Oman.

Male. Head somewhat conical, vertex not as long as breadth between eyes, margins indicated, apex bluntly pointed; pronotum a little over half as long as vertex at middle, anterior margin evenly rounded, posterior broader, angulately

excavated; elytra broad at base, meeting in sharp point at apex, venation distinct, outer apical cells very short; male plates united, longer than combined width at base, gradually tapering to slightly diverging apices which do not quite cover darkened pygofer apices below.

Female. Last ventral segment about square but appearing longer than broad as it is raised roof-like at posterior margin, and slightly excavated medially. Some trace of median longitudinal keel on posterior half.

Color. Rich, creamy white washed with yellow and tawny; a round black spot at apex of head and an oval one on mid-outer margin of each scutellar basal angle. Pale median longitudinal stripe on vertex, pronotum and scutellum, either side on vertex a narrow brown stripe with three evenly spaced lateral projections not reaching eyes. Eyes black, remainder of vertex tawny; front pale medially with many short brown indistinct lateral arcs. Pronotum with pair of median brown vittae broadening toward base, also darkened beneath eyes; basal angles and apex of scutellum tawny; elytra whitish semi-hyaline, veins fuscous, discs of cells washed with bright yellow, apical cells fumose; below creamy yellow, tinged with tawny, ovipositor pale orange.

Length: male, 4 mm.; female, 4.5 mm.

In the U.S. National Museum:—male holotype and nine paratypes, both sexes, Granite Dell, Ariz., October 6, 1929, E. D. Ball; and allotype, St. George, Utah, October 30, 1935. Light trap.

Named for Dr. E. D. Ball who collected all but one of the type series, and in whose collection it was labeled undescribed.

NEOCOELIDIA OROVILA Ball

Neocoelidia orovila, Ball, E. D. Ent. News 27:206-7, 1916.

Slender, cream-colored, the male more tawny; resembling *balli* n. sp. in coloring, but much less robust; vertex one-fifth longer than pronotum at middle.

Length: male 4.3 mm.; female, 4.5-5 mm.

Collected in California, more commonly in the southern part. Beamer reports collecting it on manzanita, *Arctostaphylos canescens* Eastw. and *A. glauca* Lindl.

NEOCOELIDIA OBSCURA Baker

Neocoelidia obscura, Baker, C. F., Can. Ent. 30:289-90, 1898.

Neocoelidia pentagona, Ball, E. D., Ent. News 27:207, 1918. (See Oman, P. W., Jour. Kans. Ent. Soc. 4: p. 68, 1931).

Neocoelidia triunata, Ball, E. D., Ent. News 27:207-8, 1916. (New synonymy).

The common southwestern member of this genus from manzanita, *Arctostaphylos* Adans., although it was swept from soapberry, *Sapindus marginatus* Walld. in the Davis Mts., Texas. A large straw-colored insect with a pentagonal vertex, often rather faintly marked with orange to reddish vittae.

Taken abundantly in Texas, New Mexico, Arizona, Utah, California and Oregon.

As is true in *N. distincta* Oman, nymphs are often marked with a blood-

red pattern, and in freshly emerged adults this coloring may persist for a time. Study of a large series of specimens from many localities, including examination of inner male genitalia, indicates that Ball's *N. triunata* is but the freshly emerged *obscura*. A series of *N. triunata* from Logan, Utah, the type locality, including one compared with the type by P. W. Oman, was available for study. Dr. Ball's label indicated *triunata* as a variety of *obscura*.

NEOCOELIDIA DISTINCTA Oman

Neocoelidia distincta, Oman, P. W., Jour. Kans. Ent. Soc. 4:67-8, 1931.

A large, robust green species with all of elytral veins distinctly brown. Described from males. The females are considerably larger and more robust than the males, length 6.5-7 mm., and the elytral veins are less distinct than in the males.

Nymphs have a scarlet line extending from apex of vertex to apex of abdomen, and also on lateral margins of abdomen. Scarlet streaks appear near the "knee" on outer surfaces of femora and tibiae. Newly emerged adults which retain this bright coloring have a very striking appearance.

Common on cat's-claws, *Acacia greggii* Gray, where it has often been beaten from dead branches. It has been taken in the Big Bend region of Texas, southern New Mexico and Arizona, and Nacazara, Mexico.

NEOCOELIDIA BARRETTI Bak.

Neocoelidia barretti, Baker, C. F. Can. Ent. 30:291, 1898.

Three black edged, outwardly extended lobes on each side from dark median dorsal stripe of vertex, central larger, distinguish this species considered by Baker as "the most striking N.A. species of the genus."

A specimen compared with the type by P. W. Oman, in the collection of the U.S. National Museum, was collected from banana debris at Brownsville, Texas, ex Mexico, November 13, 1936, by J. M. Singleton. Two specimens, male and female, Los Amates, Guatemala, Feb. 25, 1905, are in the Osborn Collection of The Ohio State University.

NEOCOELIDIA BEAMERI Oman

Neocoelidia beameri, Oman, P. W., Jour. Kans. Ent. Soc. 4:63-65, 1931.

Dorsal stripe black with basal pair of vertexal lobes "extending laterocephalad in horn-like protuberances. . . . This species may be separated from *N. barretti* Baker by its smaller size and the fact that the dorsal vitta is much wider on the posterior margin of the pronotum than on the anterior margin and has the black spots on the scutellum within the lateral margins of the median vitta" (Oman).

Dr. Beamer kindly loaned two paratypes for study from Cameron Co., Texas, August 3, 1928, E. I. and R. H. Beamer. The Ohio State University Collection contains a small series collected at Brownsville, Texas, August 8,

1937, and May 25, 1939, D. J. and J. N. Knull; and the U.S. National Museum a specimen from Brownsville, Texas, January 4, 1932, E. D. Ball.

NEOCOELIDIA PULCHELLA Ball

Neocoelidia pullohella (apparent misspelling), Ball, E. D., Ent. News 20:168, 1909.

Large and robust with a strongly produced, pointed head, and with a continuous broad median brown stripe, margined narrowly with black from base of vertex. Stripe varies in width as follows: "four regular oval enlargements on vertex, from which it regularly broadens to the base of the scutellum, then slightly narrows to the elytra, on the elytra there are three slightly angular enlargements increasing in size posteriorly. There is an irregular black spot just outside the apex of the clavus on either side from which the smoky stripe (from apex of clavus to apex of elytra) takes its origin" (Ball).

This ornate species seems to be limited in its distribution to the southern part of California. Beamer has taken it on *Rhus integrifolia* B. & W.

NEOCOELIDIA FUSCOVITTATA Oman

Neocoelidia fuscovittata, Oman, P. W., Jour. Kans. Ent. Soc. 4:65-6, 1931.

Blunt-headed; apex of head very obtuse. A yellowish species with a dark brown median longitudinal stripe arising on disk of vertex, broadening from black apical spot, to cover all except small outer portion of basal angles of scutellum. At apex of pale area and partly within dorsal stripe, a small black spot. Much darker than *N. linei* a Baker and somewhat more robust. The last ventral segment of female is produced, longest at middle, sinuate and slightly notched at middle of posterior margin.

Described from localities in Arizona and New Mexico. It has been taken also in South Dakota, Nebraska, Colorado and Texas from July to October.

NEOCOELIDIA TEXANA Oman

Neocoelidia texana, Oman, P. W., Jour. Kans. Ent. Soc. 4:62-3, 1931.

Distinguished by shape of vertexal markings and dorsal stripe as follows: "Apex of vertex with a small black spot, often continuous with the brown median vitta which arises on the disk of the vertex and extends to tip of elytra, indistinctly margined beyond clavus. Dorsal stripe narrow on vertex, widening gradually to scutellum, slightly sinuate and not at all laterally lobed on vertex, pronotum or scutellum but expanded laterally on middle and apex of clavus and becoming still wider on the corium outside the tip of clavus" (Oman).

Through the courtesy of Dr. Beamer, paratypes from Hidalgo Co., Texas, July 30, 1928, R. H. Beamer, were expanded. The Ohio State University Collection contains one specimen from Brownsville, Texas; and there is one in the Collection of Dr. D. M. DeLong collected at Brownsville, Texas, May 8, 1935, by J. N. Knull.

Neocoelidia grandiosa n. sp.

Large, with a very narrow median dorsal stripe, confluent to apex of clavus except on scutellum. Near *N. tripunctata* Ball. Head conical, vertex as long as wide, with lateral margins slightly carinate; front broad and tumid. Elytra exceeding apex of abdomen by one and one-third mm., broad, veins except claval and inner apical, obscure, indicated by rows of small, widely spaced punctures, three inner apical cells formed. Female segment three times as long as preceding, sharply but shallowly excavated at middle, forming evenly rounded lateral lobes; ovipositor exceeding pygofer. Male plates twice as long as basal width, gradually narrowing to apical third where there is rapid narrowing and in apical third together form a single narrow finger-like process which is a trifle shorter than pygofer.

Color: Pale yellowish white, a narrow median cinnamon brown stripe extends from the small round black point at apex of head to apex of clavus, and a smoky, less distinct area continues it to apex of elytra. Brown stripe occupies median 1/3 of vertex, almost parallel margined, broadens regularly to base of scutellum where it is separated on basal two-thirds by a narrow pale longitudinal stripe, narrows slightly on elytra at apex of scutellum and broadens distinctly at apex of clavus to fill area between vein and suture. A darker brown irregular area on clavus just anterior to apex of clavus forms base for smoky continuation of stripe through inner apical area of elytra, darker along appendix. Small black point is included in stripe at outer edge either side of scutellum just above median impressed transverse line. Stripe more or less distinctly margined by milky white area on pronotum and base of elytra, remainder of elytra semihyaline.

Length: female, 6.3 mm.; male, 5.7 mm.

In The Ohio State University Collection:—holotype, female, Tumacacori Mts., Arizona, August 21, 1940, D. J. and J. N. Knoll; the University of Kansas Collection:—paratypes, Santa Rita Mts., Arizona, July 17, 1932, June 12, 1933, R. H. Beamer; and Ruby, Arizona, July 22, 1938, R. H. Beamer; The U.S. National Museum: allotype and paratypes, Santa Rita Mts., Arizona, June 27, 1933, P. W. Oman; and Tucson, Arizona, May 12, 1929, E. D. Ball.

This species has been recognized for some time as undescribed by P. W. Oman and was so indicated on both National Museum and University of Kansas specimens which he had labeled.

NEOCOELIDIA TRIPUNCTATA Ball

Neocoelidia tripunctata. Ball, E. D., Ent. News 20:168, 1909.

Resembling *N. grandiosa* n. sp., but with dorsal stripe separated medially on vertex and pronotum too.

Described from one female. Male: vertex wider than long, head bluntly conical; background creamy yellow, a large round black spot at apex. Vertex and pronotum with pair of faint brown stripes growing darker posteriorly, but

slightly separated medially, and margined exteriorly with milky white. Scutellum pale with basal angles smoky yellow with a shining black point on outer margin either side above median impressed transverse line. Elytra with narrow common sutural stripe, which thickens, filling apex of clavus where it ends. Veins broadly embrowned, which is not true in female. Apex of elytra suffused with smoky yellow. Veins of apex pale and not as distinct; basal cells subhyaline white; below cream, genital area embrowned except for yellow basal area on plates. Plates together as long as broad, triangular, apex blunt, pygofer lobes exceeding them by one-third. Last ventral segment of female long, squarely rounded at apex with shallow median emargination.

Length: male, 5 mm.; female, 5.25 mm.

Comparatively rare. The Ohio State University Collection contains:—small series, Davis Mts., Texas, May 9, 1941, from oak, D. J. and J. N. Knull; Chisos Mts., Texas, June 9, 1939, D. J. and J. N. Knull. The University of Kansas Collection:—Santa Rita Mts., Arizona, July 5, 8,000 ft., F. H. Snow; and August 18, 1935, R. H. Beamer; and Davis Mts., Texas, July 12, 1938, R. H. Beamer. U.S. National Museum:—Huachuca Mts., Arizona, July 30, 1935, E. D. Ball (compared with type by Oman); and Santa Rita Mts., Arizona, June 16, 1933, P. W. Oman. D. M. DeLong's Collection:—Huachuca Mts., Arizona, June 9, 1935, J. N. Knull.

NEOCOELIDIA COMPTA Ball

Neocoelidia compta. Ball, E. D., Ent. News 20:167-8, 1909.

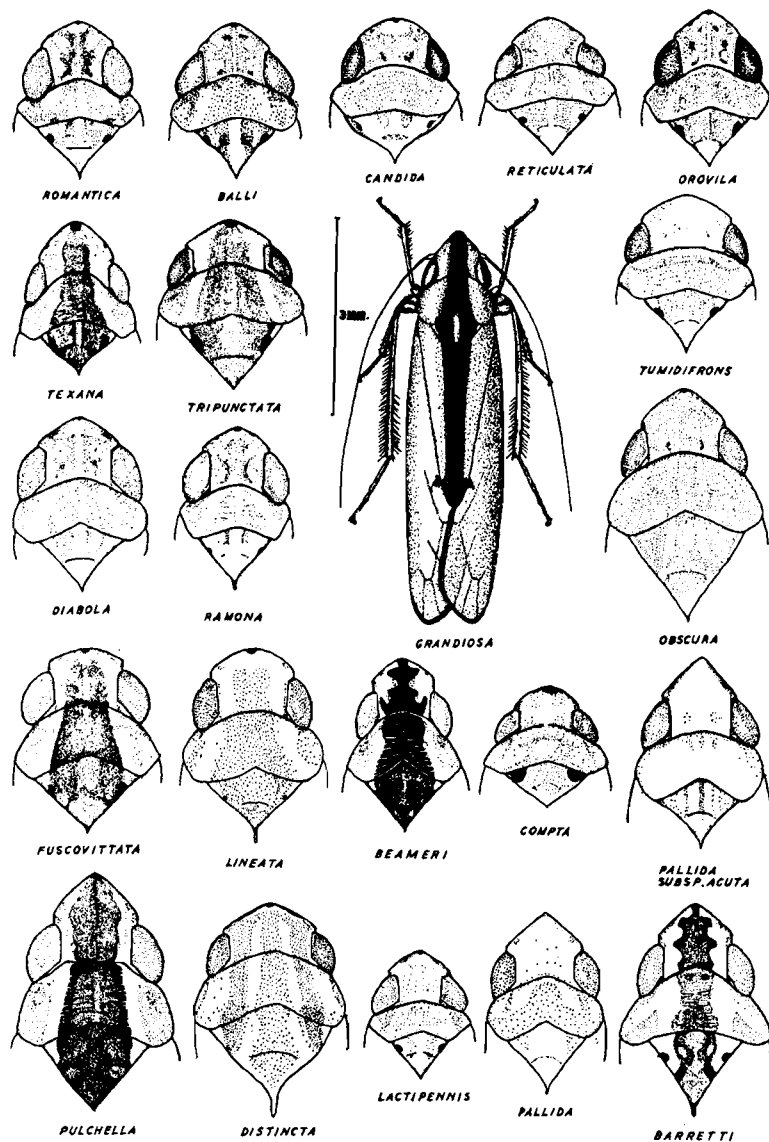
Ornate, with large shining black spots in basal scutellar angles against posterior margin of pronotum; elytra with brown median dorsal stripe twice triangulately extended out on clavus. Coloring decidedly darker in males. Often stripe but faintly indicated in females but darkened outer points on clavus always discernible.

Host, mallow, *Sphaeralcea* St. Hill spp.; found swarming in Oak Creek Canyon, August 1, 1938. It was described from Mesilla, New Mexico, and has been taken in Brewster Co., Texas; Juarez, Mexico; Oak Creek Canyon, Congress Junction, Glenn Oaks, Granite Dell, Phoenix, Tucson, Prescott, and Chiricahua Mts., Arizona; and Kanab, Utah, in June, July and August.

NEOCOBLIDIA LINEATA Baker

Neocoelidia lineata, Baker, C. F., Can. Ent. 30:289, 1898.

Head broadly, obtusely rounded; dorsal stripe indefinitely indicated from dark apical spot to apex of elytra, often lacking anteriorly. Elytra subhyaline, somewhat darker along sutural margin and at apex. Tergum black, visible through elytra. Veins of wings, except second sector, strong and dark, showing through elytra. In males these dark veins are usually especially strong and the ground color tends to be more orange. A common species in the Pacific Coast States, which is often swept in large numbers from pine, although this is probably not the host.



Specimens collected in British Columbia, Washington, Idaho, Oregon and California from June to October, have been studied. It is often difficult to distinguish between *N. lineata* and the following form.

NEOCOBLIDIA LINEATA var. PENELINEATA Oman

Neocoelidia penelineata, Oman, P. W., Jour. Kans. Ent. Soc. 4:66-7, 1931.

In his description, Oman states "This species may be distinguished from *N. lineata* by the fact that the hind wings do not have radius darkened and that it is decidedly more greenish in color."

In series of *N. lineata* there often occur lighter specimens which answer the description of *N. penelineata*. As examination of characters of the inner male genitalia of specimens from a number of localities, and of varying color intensities, showed no specific variation, this form is here given varietal rather than specific status.

All figures drawn to same scale except *N. grandiosa* in which the scale is indicated.

LIST OF SPECIES

Balli	685	Obscura	686
Barretti	687	Orovila	686
Beameri	687	Pallida	682
Candida	685	Pallida acuta	683
Compta	690	Pallida blanda	682
Diabola	683	Pulchella	682
Distincta	687	Ramona	685
Fuscovittata	688	Reticulata	683
Grandiosa	689	Romantica	684
Lactipennis	685	Texana	688
Lineata	690	Tripunctata	689
Lineata var. penelineata	692	Tumidifrons	681

REFERENCES

- BAKER, C. F. 1898—Notes on Jassini, with Some New Species, Can. Ent. 30:289-292.
 BALL, E. D. 1909—Several New Western Jassids, Ent News 20:163-168.
 ————1916—Some New Species of Athysanus and Related Genera, Ent. News 27: 206-8.
 DELONG, D. M. 1924—Some New Cicadellidae from the Southern United States, Jour. N. Y. Ent. Soc. 32:66-7.
 GILLETTE, C. P. AND C. F. BAKER. 1895—Hemiptera of Colorado, Agr. Exp. Sta. pp. 103-4.
 OMAN, P. W. 1931—Some New Neocoelidia with Notes on Other Species, Jour. Kans. Ent. Soc. 4:62-68.
 VAN DUZEE, E. P. 1890—New California Homoptera, Ent. Am. 6: 49-52.

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